Sediment Decontamination For Navigational And Environmental Restoration In NY/NJ Harbor – Case Study: Passaic River, New Jersey

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Sediments in the NY/NJ Harbor are widely contaminated with toxic organic and inorganic compounds. Decontamination of these sediments is one tool that can be used to cope with the problems posed by the presence of these compounds. We describe here a federal-state program that is testing different decontamination technologies in near-commercial scale projects during the 2004-2005time period.

We stress that sediment decontamination technologies must be integrated into a program that includes both navigational operation and maintenance (O&M) and environmental restoration dredging in order have enough flow-through capacity for these technologies to succeed economically on a large-scale. Other programs and projects that may benefit from sediment decontamination technologies include brownfield restoration, aquatic Superfund sites, renewable confined disposal facilities (CDFs), hot spot removals, environmental sustainability in developing countries, and energy co-generation. The decontaminated sediment may be used beneficially as manufactured soil, construction-grade cement, lightweight aggregate, bricks, tiles and/or structural fill. These products and the economic benefits derived from their manufacture may in turn serve as an economic driver for the redevelopment of impacted waterways, ports and harbors, and adjacent communities.

Full-scale demonstration of a thermo-chemical rotary kiln process (cement) and commercial-scale start-up of a sediment washing system (manufactured soil and bricks) will be underway this year at sites in the NY/NJ Harbor. The full-scale demonstration of manufacture of lightweight aggregate using existing rotary kilns is also in preparation. Programmatic integration of sediment decontamination demonstrations with brownfields and Superfund tasks related to highly impacted contaminated in-water sites such as the Passaic River, NJ, and the Gowanus Canal and Newtown Creek, NY is planned. Challenges to implementation such as long-term contracts, shared risk between public and private partnerships, and beneficial use testing and marketability will also be addressed.

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